OPEN ACCESS
Indonesian Journal of Pedagogy and Teacher Education Vol 3 No 3 (2025) https://doi.org/10.58723/ijopate.v3i3.590
Check for updates
Research Article

Comparison of the Effectiveness of Quizalize and Quizizz Learning Media on Children's Learning Outcomes at Al-Kautsar Kindergarten in Bengkulu City

Received: December 25, 2025	Revised: December 27, 2025	Accepted: December 28, 2025	Publish: Desember 30, 2025

Fatimah Nur Faizah*, Suhaimi, Aura Fransischa, Muhammad Hafiz Kurniawan, Nina Kurniah

Abstract:
Background: As technology has advanced, educational tools have seen numerous transformations, notably the introduction of game-based platforms like Quizizz and Quizalize. Both media offer interactive approaches to improve learning outcomes. These media can be used in kindergarten learning, but there has been no study comparing their effectiveness in kindergartens in Bengkulu.
Aims: To compare the effects of Quizalize and Quizizz media on children's learning outcomes.
Methods: Quasi-experiment with 30 students (15 experimental class, 15 control class). Analysis using normality test, homogeneity test, t-test, and Normalized Gain (N-Gain).
Results: There was no significant difference in the pre-test ($p = 0.936$), but the post-test showed a significant difference ($p = 0.020$). However, when compared based on N-Gain, there was no significant difference between the two media ($p = 0.282$).
Conclusion: These findings indicate that both Quizalize and Quizizz are equally effective in improving children's learning outcomes. There are no statistical findings to support the superiority of either medium.

Keywords: Learning Outcomes, Gamifikasi, Quizalize, Quizizz

1. INTRODUCTION

The foundation for a child's developmental phase begins in Early Childhood Education (PAUD). During this phase, the spiritual, cognitive, and social-emotional foundations of a child are formed. At the age of 4-6 years, children are in the pre-operational stage of development, where learning is acquired through exploration, play activities, and imitation (Rizka, 2020). At this stage, children are not yet able to think abstractly, so the learning taught is concrete, fun, and multisensory. In the current era dominated by digital advancements, the shift towards technology-driven learning is gaining traction, also extending its reach to preschool educational settings. A noteworthy development being employed is the gamified learning system, a pedagogical method that incorporates game elements within the educational framework, with the primary objective of boosting learner participation and generating heightened interest among the students (Deterding & Dixon, 2011). Two popular gamification platforms are Quizalize and Quizizz. Quizalize is a formative assessment application that is gamified in a fun and engaging way for teachers to collect data on student progress (Mahdian, 2023). Meanwhile, Quizizz is a gamification-based assessment tool application that is very effective in improving potential (Nikola et al., 2024). Both of these learning media enable teachers to create interactive quizzes that can be used in real-time or asynchronously, with attractive visual features, instant feedback, and a points system. Although they are functionally similar, these two platforms differ in terms of interface structure, student engagement mechanisms, and question types. Quizalize emphasizes personalized feedback and individual progress tracking, and enables post-quiz instructional differentiation (Onasanya, 2020). While Quizizz emphasizes social and competitive leaderboards, motivational memes, and a more flexible "homework" mode (Jasmy et al., 2023).

It has been demonstrated that using game-like elements in the classroom significantly boosts kids' drive to learn, their academic achievements, and how involved they are mentally and emotionally, particularly for young children (Lamrani & Abdelwahed, 2020). Children aged 4-6 years old respond positively to learning with audio, visual, and immediate feedback elements. This is in line with the characteristics of the Quizalize and Quizizz platforms. According to research conducted by Kai &

Publisher Note:
CV Media Inti Teknologi stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Copyright
©2025 by the author(s).
Licensee CV Media Inti Teknologi, Bengkulu, Indonesia. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution-ShareAlike (CCBY-SA) license (https://creativecommons.org/licenses/by-sa/4.0/).

Chu (2020) shows that gamification designed in accordance with early childhood development can increase participation and focus in learning. A study conducted by Sailer & Homner (2020) found a moderate effect of gamification on learning outcomes, with a value of g=0.47. Research conducted by Kartini & Purwokerto (2023) shows that the use of Quizizz can increase student motivation in junior high school students. Chaiyo (2017) In his research, he found that light-heartedness and humorous features on the Quizizz platform can increase student motivation without causing academic anxiety.

Meanwhile, according to Ayuningtyas (2025) shows that Quizalize can improve and strengthen long-term conceptual understanding. Ibrahim et al., (2025) states that Quizalize is more suitable for differentiated learning because it provides individualized analytical reports that are useful in heterogeneous classrooms such as those in kindergarten. According to a study by Liu et al., (2025) using game-like features in early learning is helpful because it greatly boosts how interested kids are when these features fit their culture and age. In contrast, Smiderle et al., (2020) point out that how well gamification works relies on the students' ages, how lessons are planned, and what the lessons are about. Without strong evidence, claims of superiority on one platform risk being speculative. The majority of studies focus on platforms such as Kahoot! or other applications, rather than on a direct comparison between Quizalize and Quizizz.

Research Anh (2025) emphasizes that gamification elements must be tailored to children's cognitive development stages, such as simple animations, bright colors, and audiovisual instructions. Research conducted by Smolucha (2021) emphasizes that the gamification-based approach in early childhood education is based on the Vygotskian perspective, in which platforms such as Quizalize and Quizizz can function as digital scaffolding designed with the ZPD (Zone of Proximal Development) principle.

Onasanya (2020) states that platforms with real-time features such as Quizalize enable teachers to create quizzes tailored to learning objectives and curriculum. Sumartiningsih (2025) in her research shows that gamification in early childhood education must prioritize narrative, positive feedback, and user control. According to research conducted by Nuary et al., (2024) where he found that children aged 5-6 years were more motivated by quizzes accompanied by cartoon characters or stories rather than just ranking scores. This study also emphasizes that success depends on the suitability of gamification features to the child's developmental stage. Based on several studies conducted, it shows that no gamification platform is inherently better than others; rather, contextually appropriate implementation determines the success of the platform. Therefore, this becomes the basis for testing the comparison between Quizalize and Quizizz at the early childhood education level in Bengkulu.

This research holds significant value due to the factual data it offers concerning how well Quizalize and Quizizz perform as learning tools. The findings from this research can serve as a guide for preschool educators when they are deciding on which tools or systems to use that grab attention, work well, and fit with how young children learn. The purpose of this study is to evaluate and contrast Quizalize and Quizizz to understand how they affect what young students learn at Al-Kautsar Islamic Kindergarten located in Bengkulu City.

Most studies conducted on Quizalize and Quizizz have been at the elementary school to college level (Sánchez-mena, 2016). Research using these two platforms or focusing on gamification is still very limited, especially in Indonesia. There has been no research comparing the effectiveness of the Quizalize and Quizizz platforms with methods such as Normalized Gain (N-Gain) in early childhood education.

2. MATERIAL AND METHOD

Research Design :

This study employs a quasi-experimental approach, utilizing a design that includes a control group. The target demographic for this research consisted of all children between the ages of four and six attending Al-Kautsar Islamic Kindergarten located in Bengkulu City. The specific sampling strategy implemented in this investigation was purposive sampling, with the experimental class using Quizalize with 15 children, while the control class used Quizizz with 15 children. Thus, the sample used consisted of 30 students. This study used a picture-based multiple-choice quiz instrument, tailored to the learning theme and in accordance with the cognitive development of early childhood.

Procedures:

The methods employed throughout this investigation were as follows:

1. Both the experimental and control groups were given an initial assessment before the study began.
2. For a duration of two weeks, educational exercises were performed, with each group utilizing its assigned online system.
3. Following the completion of the instructional period, a final assessment was conducted.
4. The data underwent examination using several statistical measures, including Shapiro-Wilk tests for normality, Levene tests for homogeneity, independent t-tests, and calculations of Normalized Gain (N-Gain).

Analysis plan:

Data analysis in this study used SPSS version 26. The comparison of means was performed using an independent samples t-test. N-Gain was calculated using the formula:

$$\text{N} - \text{Gain} = \frac{Post-test - Pre-test}{100 - Pre-test} \quad (1)$$

Scope and/or limitations of the methodology you used:

The small number of participants and the restriction to a single location represent the constraints of this research. The intervention's short timeframe in this study, which lasted just two weeks, also presented a limitation, as it failed to capture the lasting consequences of the duration and didn't assess emotional dimensions like eagerness to learn and drive.

3. RESULT AND DISCUSSION

3.1 Results

Table 1. Tests of Normality

	Classes	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
HB	Pre Class Experiment	.108	15	.200*	.951	15	.546
	Post Experiment Class	.123	15	.200*	.971	15	.874
	Pre Class Control	.114	15	.200*	.962	15	.728
	Post Control Class	.162	15	.200*	.913	15	.151

Note: *. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the data presented in the table previously mentioned, the significance value exceeds 0.05, indicating that the data follows a normal distribution pattern.

Table 2. N-Gain Value

No		Average N-Gain	Criteria
1.	Quizalize Experiment Class	0,30	Low
2.	Quizizz Control Class	0,28	Low

The table above shows the N-Gain score for the experimental class to be 0.30, while the N-Gain for the control class was 0.28.

Table 3. Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre Test Experiment - Post Test Experiment	-31.400	4.954	1.279	-34.143	-28.657	-24.548	14	.000

The Paired Samples Test table shows the significance value (2-tailed) in the table. The significance value (2-tailed) of this case example is 0.000 ($p < 0.05$).

Table 4. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					
								95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
HB	Equal variances assumed	.215	.646	1.098	28	.282	2.200	2.004	-1.905	6.305
	Equal variances not assumed			1.098	27.750	.282	2.200	2.004	-1.906	6.306

Based on the table, Sig. (2-tailed) 0.282 > 0.05 and Thitung (1.098) < t table (1.701), it can be concluded that there is no difference in the learning outcomes of students in the experimental class and students in the control class, meaning that there is no effect of the learning model on students in the experimental class and students in the control class.

After conducting a normality test on both groups, a paired sample t-test was conducted before and after using the Quizalize platform. The t-test at the 0.05 level produced a sig value of 0.000<0.05, which proves that there is a difference in student learning before and after using the Quizalize platform.

3.2 Discussion

These results indicate that the use of Quizalize significantly improved students' learning outcomes, which is consistent with previous findings highlighting the effectiveness of gamification-based learning for young learners **(**Ayuningtyas, 2025)**.** In a study of 50 fourth-grade elementary school students, it was found that students were more motivated because the gamification features in Quizalize included visual images, audio, and a points system. Quizalize is suitable for teaching young children because it supports multi-sensory learning and can maintain children's attention. Widianto et al., (2024) states in his research that Quizalize offers quiz-based gamification with more adaptive personalization and provides an individualized, real-time learning experience. Quizalize increases behavioral, cognitive, and emotional engagement through its personalization and adaptive feedback features (Ahn, 2024). The use of gamification on Quizalize is easier to use, more efficient, and more effective for learning evaluation (Onasanya, 2020).

Based on the Normalized Gain analysis (p=0.282), no significant difference was found between the two, although the post-test scores showed a significant difference (p=0.020), most likely influenced by external variables such as classroom atmosphere or teacher presence. The findings of this study indicate that both the Quizalize and Quizizz platforms are equally effective in improving the learning outcomes of early childhood students. The advantages of the Quizalize application are 1) improving student understanding, 2) conducting research that can improve student memory, 3) students can learn at home or anywhere, 4) students can make flashcards or games, 5) students can change card sets as desired, and 6) teachers can create classes to monitor the learning process (Mahdian, 2023). Meanwhile, the disadvantages of the Quizalize application according to Delgado (2023) namely limited access and inability to open, as well as insufficient support for complex questions. Quizalize has game features such as an automatic environment, music, avatars, and memes that can bring fun to the learning process (Junior, 2020).

The outcomes suggest the absence of a noteworthy variation in how well Quizalize and Quizizz performed; this lines up with earlier research highlighting that the impact of using game-like elements is tied more closely to how the learning is structured than to the actual tools employed (Sailer & Homner 2020).

Barakwan (2024) The study reported that the use of Quizalize in descriptive writing lessons with a sample of seventh-grade MTs students can increase learning completeness from 44.4% to 81.5%. They stated that the combination of audio, visual, and point systems in Quizalize can make learning more enjoyable and able to

maintain student focus. This is very relevant for children aged 4-6 years who have a short attention span and learn through multisensory stimulation (Barutchu et al., 2019).

On the other hand, in this study using the Quizizz platform, the t-test result was 0.05 with a sig value of 0.000<0.05. This proves that there is a difference in student learning before and after using the Quizizz platform. Maulidya et al., (2022) found that the use of Quizizz in fourth-grade elementary school students increased N-Gain by 0.77 (high category) compared to the control class (0.50). Features such as leaderboards, background music, timers, and random questions are considered to trigger healthy competition without causing academic anxiety. Similarly, Nikola et al., (2024) reported a significant increase in motivation ($p = 0.042$) and mathematics learning outcomes ($p = 0.047$) in eighth-grade junior high school students who used Quizizz. The advantages of the Quizizz application are its various features, such as powers, memes, music, and leaderboards, which make learning fun (Purba, 2020). The shortcomings or obstacles that arise are limited internet access and navigation, which affect students' motivation to use resources. For example, platforms that force students to switch from one tab to another make the platform less entertaining and appealing to them. Educators must also be careful in using these game-based platforms to assess students because the assessment system depends on points (Delgado, 2023). This is also in line with research Asyifa et al., (2024) The study also mentions that Quizizz has some drawbacks; namely, it is difficult to access without an internet connection, and the music feature makes students feel nervous. Quizizz also increases the opportunity for cheating because it is easy to open another tab and use other applications such as Google.

Other findings confirm that the effectiveness of the platform depends on the content, the age of the learners, and the design of the activities. Research conducted Goksun & Gursoy, (2019) explained that the Quizizz application had a lower impact on the experimental group than on the control group. They explained that visual feedback such as images or memes was considered irrelevant to students. In the context of early childhood education as in this study, both platforms had a Quizalize approach with instructional differentiation and Quizizz with social competition, both platforms equally supported active learning through play (Delgado, 2023). Young children do not need the best platform, but rather learning designs or activities that are appropriate for their cognitive, emotional, and social development, as well as concrete, visual, enjoyable, and interactive (Aini et al., 2024). Both platforms in this study were designed with the same pedagogical approach so that their learning impacts are equivalent. Thus, in this study, neither platform is superior to the other. Early childhood teachers can choose which platform to use: Quizalize if they want to focus on formative assessment, remediation, and personalization, or Quizizz, which can create a fun competitive atmosphere and short-term motivation. Early childhood educators should consider the suitability of implementation in the classroom context, principles of early childhood development, and technological readiness.

3.2.1 Implications

Early childhood teachers can choose one platform based on teaching preferences, technology availability, or classroom context, without worrying about losing learning effectiveness.

3.2.2 Research Contribution

This study compares Quizalize and Quizizz in the context of kindergarten in Indonesia, and is expected to contribute empirically to the literature on early childhood digital education in developing countries.

3.2.3 Limitations

The purpose of this study is to compare the effectiveness of the Quizalize and Quizizz platforms. However, the results of the study may differ in different situations, such as a limited number of participants, not measuring affective aspects, for example: motivation, excitement of learning, and no qualitative observation of children's behavior while using the platform.

3.2.4 Suggestions

Based on the comprehensive analysis conducted in this study, there are several suggestions for future research that are expected to improve understanding of the effectiveness of the Quizalize and Quizizz platforms. Here are some suggestions: researchers should involve larger samples and multiple locations; combine quantitative and qualitative approaches; evaluate long-term impacts and non-cognitive developmental aspects.

4. CONCLUSION

This research was conducted to assess how well Quizalize and Quizizz, both learning tools that use game-like elements, helped young students at Al-Kautsar Islamic Kindergarten in Bengkulu City learn better. The data showed that using either of these tools led to considerable gains in what the students learned after the teaching period. Yet, a specific type of analysis called Normalized Gain (N-Gain) revealed that the gains made by students using Quizalize were not statistically different from those using Quizizz, suggesting that both platforms worked about the same

These findings suggest that the success of gamification-based learning in early childhood education is not determined solely by the choice of digital platform, but rather by how the learning media are designed and implemented in accordance with children's developmental characteristics. Interactive features,

visual elements, immediate feedback, and play-based learning activities appear to play a crucial role in supporting children's learning processes.

Therefore, early childhood teachers may use either Quizalize or Quizizz as learning media based on classroom conditions, instructional goals, and technological readiness without concern for differences in learning effectiveness. Future studies are encouraged to involve larger samples, longer intervention periods, and additional variables such as learning motivation, engagement, and emotional responses to further explore the impact of gamification in early childhood education.

5. ACKNOWLEDGEMENT

First of all, we would like to thank Al-Kautsar IT Kindergarten in Bengkulu City for their full support and permission, as well as their active involvement and cooperation in supporting this research. We would also like to thank Bengkulu University for the facilities and academic guidance provided.

6. AUTHOR CONTRIBUTION STATEMENT

All authors contributed to this research. FNF, SHM, and AF designed the research and developed the methodology. FNF and SHM were responsible for collecting data in the field and conducting visual analysis and results. FNF and AF wrote the discussion section and refined the manuscript before submission. All authors have read and approved the final manuscript.

AUTHOR INFORMATION

Corresponding Authors

Fatimah Nur Faizah, Universitas Bengkulu, Indonesia

https://orcid.org/0000-0001-5604-6532

Email: fatimahnurfaizah@gmail.com

Authors

Suhaimi, Universitas Bengkulu, Indonesia

https://orcid.org/0009-0001-3864-3250

Email: suhaimi23011990@gmail.com

Aura Frasischa, Universitas Bengkulu, Indonesia

https://orcid.org/0009-0000-0929-9377

Email: aurafrasischa17@gmail.com

Muhammad Hafiz Kurniawan, INTI International University, Malaysia

https://orcid.org/0009-0007-5069-0811

Email: kurni.hafiz2002@gmail.com

Nina Kurniah, Universitas Bengkulu, Indonesia

https://orcid.org/0000-0001-6482-2984

Email: ninakurniah@unib.ac.id

REFFERENCE

Ahn, T. T. (2024). *Sử Dụng Quizalize Hỗ Trợ Đánh Giá Thường Xuyên*. *24*, 36–41. https://doi.org/10.38144/Tnu-Jst.2021.02.046

Aini, S. N., Ardah, F. K., Mahendika, D., & Intes, A. (2024). *Impact Of Quizizz Learning Media In Increasing Interest And Motivation For Learning In Early Childhood Education Students*. *3*(April), 175–189. https://doi.org/10.55849/Jiltech.V3i1.600

Anh, T. T. N. (2025). *Interactive Mobile Technologies*. *19*(19), 122–133. https://doi.org/10.3991/Ijim.V19i19.56409

Asyifa, A. K., Widyarani, A. S., & Qurniawan, S. (2024). *The Advantages And Disadvantages Of Using Quizizz In English Learning As An Assessment Tool Based On Students Of UIN SAIZU ' S Perception*. *2021*, 32–41. https://doi.org/10.24090/celti.2024.1009

Ayuningtyas, O. (2025). *Metafora : Jurnal Pembelajaran Bahasa Dan Sastra Quizalize App : Teaching English Vocabulary For Young Learners*. *12*(1), 113–119. https://doi.org/10.30595/Mtf.V12i1.27159

Barakwan, M. F. (2024). *The Implementation Of The Quizalize Application In Improving Academic Writing Skills Of EFL Students The Implementation Of The Quizalize Application In Improving Academic Writing Skills Of EFL Students*. 426–434. https://doi.org/10.30605/25409190.738

Barutchu, A., Toohey, S., Shivdasani, M. N., Fifer, J. M., Crewther, S. G., Grayden, D. B., & Paolini, A. G. (2019). Journal Of Experimental Child Multisensory Perception And Attention In School-Age Children. *Journal Of Experimental Child Psychology*, *Xxxx*. https://doi.org/10.1016/J.Jecp.2018.11.021

Chaiyo, Y. (2017). *The Effect Of Kahoot , Quizizz And Google Forms On The Student ' S Perception In The Classrooms Response System* . https://doi.org/10.1109/ICDAMT.2017.7904957

Delgado, Jose A. (2023). *Kahoot , Quizizz , And Quizalize In The English Class And Their Impact On Motivation Motivación*. *30*(1), 65–84. https://doi.org/10.19183/How.30.1.641

Deterding, S., & Dixon, D. (2011). *From Game Design Elements To Gamefulness : Defining " Gamification ."* 9–15. https://doi.org/10.1145/2181037.2181040

Goksun, D. O., & Gursoy, G. (2019). *Computers & Education Comparing Success And Engagement In Gami Fi Ed Learning Experiences Via Kahoot And Quizizz*. *February*, 15–29. https://doi.org/10.1016/J.Compedu.2019.02.015

Ibrahim, Nadjamudin, L., & Hasdin. (2025). Effectiveness Of Quizalize Games As Environmental Education Learning Media For Elementary School Students Efektivitas Quizalize Game Sebagai Media Edukasi Lingkungan Pada Siswa Sekolah Dasar. *Pedagogik Journal Of Islamic Elementary School*, *8*(1), 467–481. https://doi.org/10.24256/pijies.v8i2.7388

Jasmy, M., Rahman, A., Ishak, N. S., Noor, D., & Omar, A. (2023). *The Impact Of Interactive Applications Kahoot And Quizizz In Enhancing Students ' Performance In Geography*. *13*(12), 4126–4133. https://doi.org/10.6007/IJARBSS/V13-I12/20293

Junior, J. B. B. (2020). *Assessment For Learning With Mobile Apps : Exploring The Potential Of Quizizz In Educational Context*. *10*, 33366–33371. http://www.journalijdr.com/

Kai, S., & Chu, W. (2020). *Exploring The Effects Of Gamification Pedagogy On Children's Reading: A Mixed-Method Study On Academic Performance, Reading-Related Mentality And Behaviors, And Sustainability*. *0*(0), 1–19. https://doi.org/10.1111/Bjet.13057

Kartini, A., & Purwokerto, U. M. (2023). *The Effect Of The Quizizz Game On Increasing Motivation And Social Studies Learning OutcomeS*. *5*(3), 246–262. https://doi.org/10.37680/Scaffolding.V5i3.3442

Lamrani, R., & Abdelwahed, E. H. (2020). *Game-Based Learning And Gamification To Improve Skills*. *929*(1), 339–356. https://doi.org/10.2298/CSIS190511043L

Liu, J., Chen, M., He, H., Liu, H., Luo, W., & Li, H. (2025). *Forms And Functions Innovation : A Scoping Review Of Digital And Intelligence Technologies In Early Childhood Education Practice*. 1–15. https://doi.org/10.1007/S44436-025-00010-6

Mahdian, P. S. (2023). Training Science Teacher Understanding In Creating Science Learning Assessments Using The Quizalize Application. *Jurnal Pengabdian Masyarakat*, *6*(2), 293–299. https://doi.org/10.20527/Btjpm.V6i2.10174

Maulidya, E., Aryaningrum, K., & Fakhrudin, A. (2022). *The Effectiveness Of The Use Of Quizizz-Based Gamification On Students' Learning Interest In 4th Grade Mathematics*. *8*(1). https://doi.org/10.30870/Jpsd.V8i1.13375

Nikola, D. A., Harini, E., & Taufiq, I. (2024). *Union : Jurnal Ilmiah Pendidikan Matematika The Effect Of Using The Educational Game Quizizz On Student Motivation And Math Learning In Grade 8*. *12*(3), 612–625. https://doi.org/10.30738/Union.V12i3.17763

Nuary, M. G., Abidin, J., Pranatha, A., & Wahyu, T. (2024). *The Impact Of Quizizz Learning Media In Increasing Interest And Learning Motivation For Early Childhood Education Students*. *3*(August), 329–344. https://doi.org/10.55849/Jiltech.V3i2.657

Onasanya, T. O. (2020). Perception Of Undergraduates On The Utilization Of Quizalize App For Formative Assessment In Online Educational Programme In The University Of Ilorin. *West African Journal Of Open & Flexible Learning*, *9*(1). https://wajofel.org/index.php/wajofel/article/view/67

Purba, L. (2020). *The Effectiveness Of The Quizizz Interactive Quiz Media As An Online Learning Evaluation Of Physics Chemistry 1 To Improve Student Learning Outcomes The Effectiveness Of The Quizizz Interactive Quiz Media As An Online Learning Evaluation Of Physics Chemis*. https://doi.org/10.1088/1742-6596/1567/2/022039

Rizka, N. (2020). *The Effect Of The Storytelling Method Using Bigbook On The Language Ability Of Children Aged 5-6 Years In Group B TK Mutiara Bunda Bangkinang*. *449*(Icece 2019), 110–115. https://doi.org/10.2991/Assehr.K.200715.022

Sailer, M., & Homner, L. (2020). *The Gamification Of Learning : A Meta-Analysis*. 77–112. https://doi.org/10.1007/S10648-019-09498-W

Sánchez-Mena, A. (2016). *Gamification In Higher Education : Teachers ' Drivers And Barriers José Martí-Parreño*.

Smiderle, R., Rigo, S. J., Marques, L. B., Arthur, J., Miranda, P. De, & Jaques, P. A. (2020). *The Impact Of Gamification On Students 'Learning , Engagement And Behavior Based On Their Personality Traits*. https://doi.org/10.1186/S40561-019-0098-X (2020)

Smolucha, L., & Smolucha, F. (2021). *Vygotsky ' S Theory In-Play : Early Childhood Education Vygotsky 'S Theory In-Play : Early Childhood Education*.

https://doi.org/10.1080/03004430.2020.1843451

Sumartiningsih, I. (2025). *Gamification In Early Childhood Education : Improving Students ' Learning Motivation Through Game-Based Learning Strategies*. *8*(1), 50–64. https://doi.org/10.31537/Jeti.V8i1.2333

Widianto, P., Fadhilawati, D., & Sutanti, N. (2024). *Examining Quizalize ' S Impact On Students ' Reading Comprehension Mastery*. *8*(2), 338–349. https://doi.org/10.28926/riset_konseptual.v8i2.983